

Pool and Spa Measure Revisions

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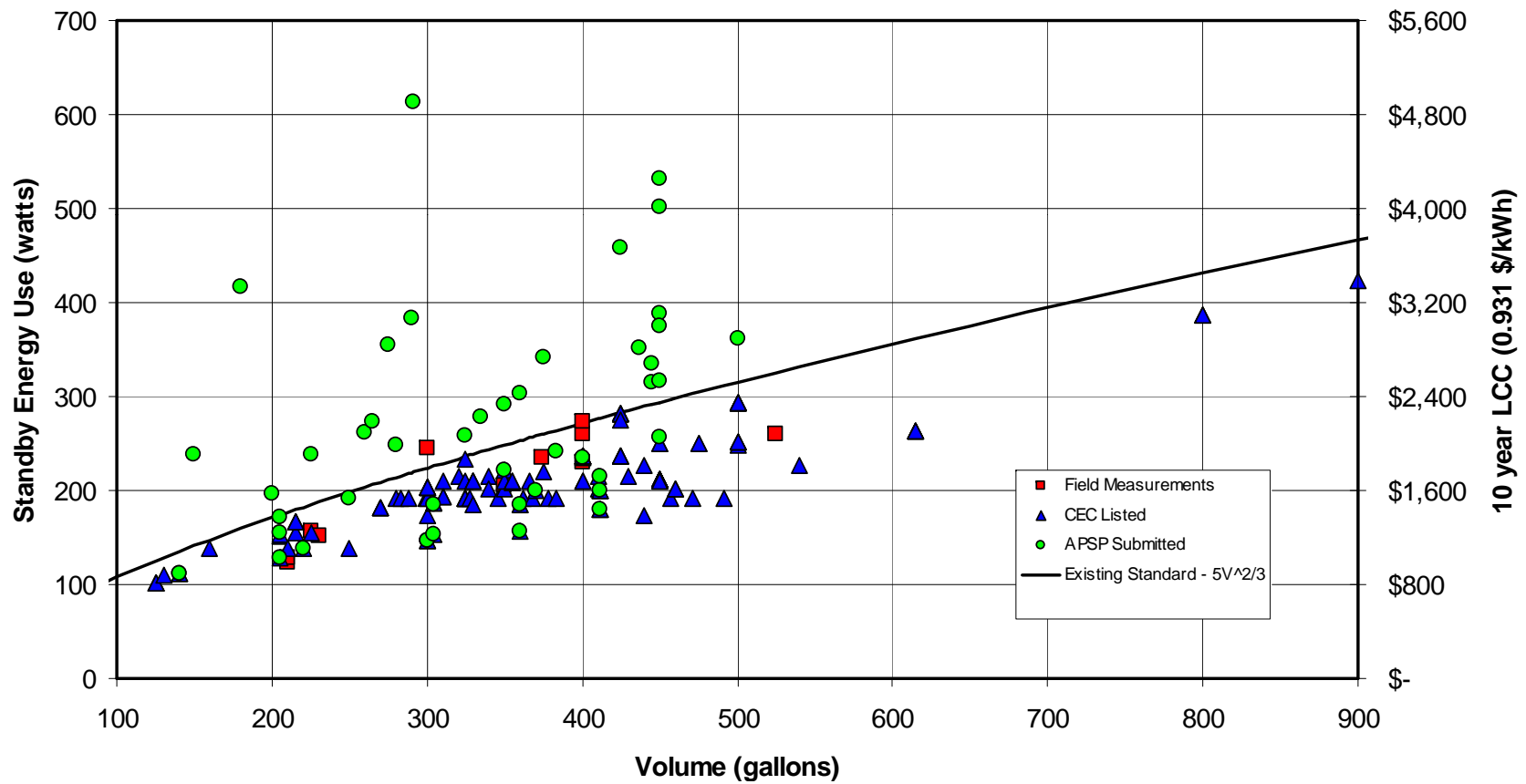
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Thursday, May 15, 2008
CEC Efficiency Committee Workshop
2008 Rulemaking on Appliance Efficiency Regulations
Docket No. 07-AAER-3

Portable Electric Spa Background

- Spas first covered in the 2005 standards
- PG&E CASE report recommended:
 - Testing and listing of spas
 - Maximum standby energy use based on spa volume ($5 \cdot V^{2/3}$)
- All recommendations accepted and became effective January 1, 2006
- Some manufacturers have found it difficult to qualify their smaller spas and question the accuracy of the current test method
- PG&E, APSP, and a number of spa manufacturers have been meeting to discuss these problems
- APSP has begun development of an ANSI spa test method based on the CEC test method

Spa Test Data



Response to CEC

Draft Amendments for Spas

- PG&E agrees with all of the proposed CEC clarifications to the spa test method
- Future refinements to the spa test procedure as developed by APSP and Cal Poly should be incorporated as appropriate
- In addition two further changes are proposed:
 - Definition of spa volume
 - Elimination of relative humidity reporting

Proposed Spa Test Modifications

- Define Spa volume
 - Currently no standard definition
 - Multiple incentives to overstate volume
- Possible definitions include
 - Actual or operating fill volume
 - Maximum fill volume
 - Maximum fill volume minus 10.6 times rated capacity
- Eliminate reporting requirement of average relative humidity during spa test

Residential Swimming Pool Pump Background

- Pool Pumps first covered in the 2005 standards
- PG&E CASE report recommended:
 - Testing and listing of pool pumps
 - Elimination of low efficiency motors
 - Requiring two-speed motors for pumps of greater than 1 hp
- Testing and listing and efficiency requirements became effective January 1, 2006
- Two-speed motors required effective January 1, 2008
- 2008 Title-24 pool design standards now include minimum turnover times and maximum flow velocities

Residential Swimming Pool Pump Issues

- Current scope only includes Residential Pool Pumps – motors are not explicitly mentioned
- It is the interpretation of the CEC that the standards do not cover replacement pool pump motors
- Since implementation of the standards manufacturers have brought out an increasing variety of multi-speed and variable-speed motors.
 - These can provide significant energy savings
 - Their performance is more difficult to characterize
- Title-24 pool standards rely on a new pool system curve to size pumps for pools of greater than 25,000 gallons

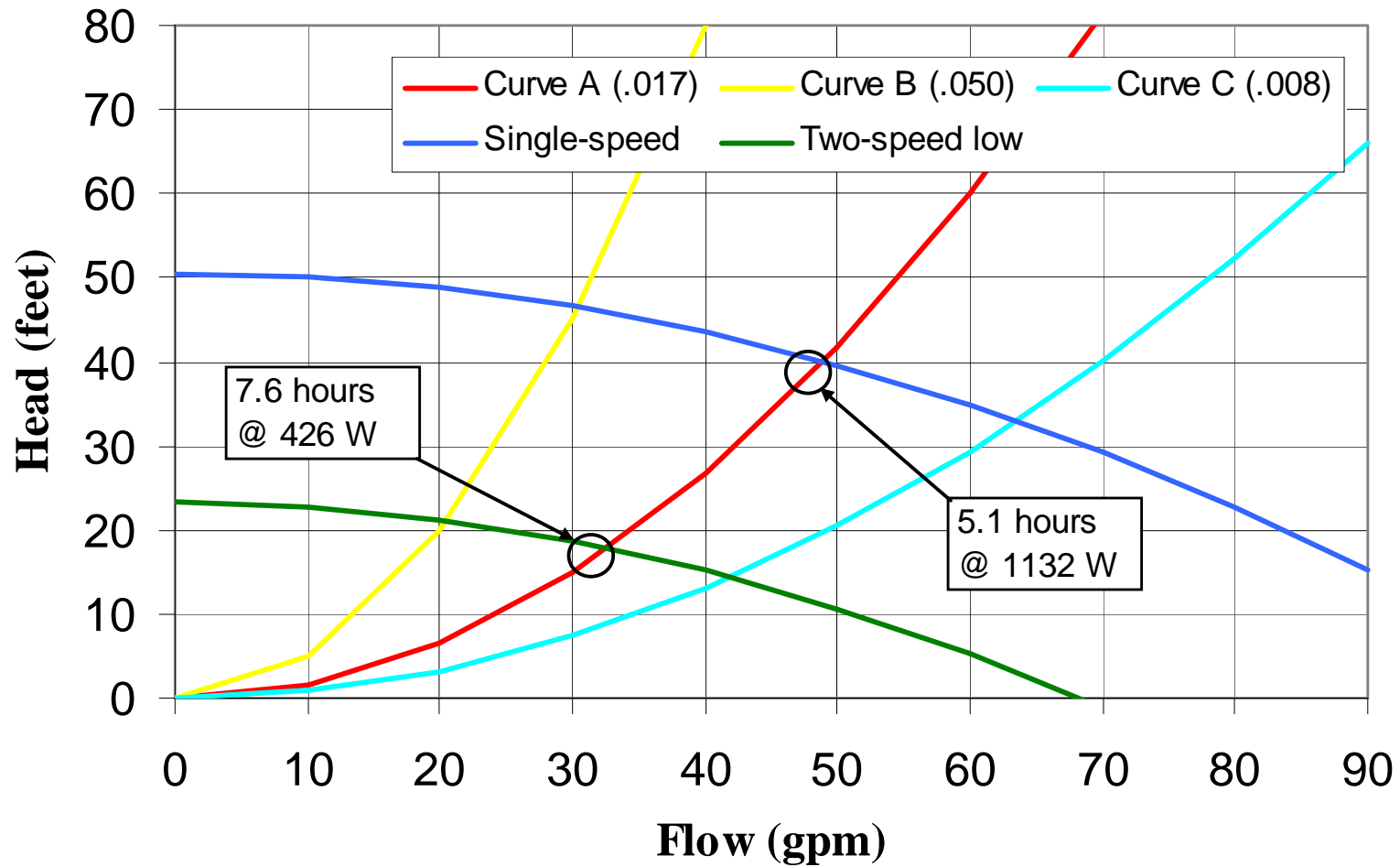
Response to CEC

Draft Amendments for Pools

- PG&E agrees with all of the proposed CEC pool pump language modifications, especially the inclusion of replacement pool pump motors
- Not including replacement motors will forgo the majority of the energy savings attributed to the pool pump standards
- Replacing a single-speed pool pump motor with a two-speed motor is highly cost effective:

<i>Design Life (years)</i>	<i>Annual Energy Savings (kWh)</i>	<i>Present Value of Energy Savings</i>	<i>Incremental Cost</i>	<i>Net Customer Present Value</i>	<i>BCR</i>
10	881	\$821	\$422	\$399	1.9

Pool System and Pump Curves



Suggested Next Steps

- Settle on a standard spa volume definition
- Work with APSP to resolve spa testing issues
- Include replacement pool pump motors in the scope of the standards
- Work with industry to educate pool service firms on the benefits of multi-speed pumps and good pool design
- Investigate how to best test variable-speed pumps